Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

An acceptance of modern biological notions is given as another cause of its success. But while functionalism and pragmatism agree in their instrumental interpretation of knowledge, they differ in their philosophic conclusions. The one gives merely a vital, the other tends towards a veridical, interpretation of the useful, and thus runs off from bionomics into epistemology. Cesca finds no fault with the biological theory of utility as being one of relativity, yet he criticizes pragmatism for a relativity which tends towards the solipsistic and away from the social.[38] The criticism is well taken, but hardly in this connection. It is from a biological and not an epistemological standpoint that the last and most weighty objection to present pragmatism may be raised. There is that narrow opportunism which is contented with immediate personal success, a Machiavellian self-satisfaction which, as Cesca says, may prove of grave harm to the individual. But that broader opportunism, which passes beyond the absolute autonomy of the individual and takes into consideration the external criterion of social authority—this pragmatism has not yet reached.[39]

I. WOODBRIDGE RILEY.

VASSAR COLLEGE.

AN EXPERIMENTAL STUDY OF THE FUSION OF COLORED AND COLORLESS LIGHT SENSATION
THE LOCUS OF THE ACTION

THE following is a brief preliminary statement of the results of experiments carried on in the Bryn Mawr college laboratory during the past year to determine at what physiological level the action of brightness[1] upon color excitation may be assumed to take place. A full report of this work will take the following form: (1) A brief statement will be made of previous work done by the writers on after-image and contrast sensations aroused by stimuli in which no color was sensed. (2) An explanation will be sought for the results obtained in this work in terms of the influence of brightness upon color excitation. (3) Evidence will be submitted that the level at which this influence takes place is posterior to that usually ascribed to the paired processes, positive and negative. (4) A suggestion will be made as to the level at which other visual fusions take place, subject to modification by the results of work now in progress.

In a paper read before the Princeton meeting of experimentalists in 1908, one of the writers discussed the experimental conditions under which he had obtained colored after-image and contrast sensations from stimuli in which no color was sensed. A formulation of these conditions, together with the evidence of allied limen and fusion experiments, showed the phenomenon to be a peculiarity of the inhibitive action of brightness upon color. Brightness fused with color inhibits its saturation. With the possible exception of the region just within the limits of sensitivity for two colors, the following may be stated roughly as a law of this action for all colors and all parts of the retina: white inhibits most, grays in the order from light to dark next, and black the least. The technique, then, of getting, for example, a colored after-image from a stimulus in which no color is sensed becomes merely a matter of fusing the least favorable brightness quality with the stimulus color, and the most favorable with the after-image color. When this technique was carried out in its best form, the colored after-image was gotten in practically every case.

---

[38] "La filosofia dell' azione," p. 273.

[39] *Ibid.*, pp. 281, 283.

[1] For the sake of brevity, brightness is used here as a general term for the colorless sensation series—white, black, and the grays.

Two interpretations of this phenomenon are possible. It may be considered (1) that this action upon the stimulus color takes place in the retina at the level of the paired processes, positive and negative, in which case we should expect the negative excitation to be diminished by whatever diminishes the positive excitation; or (2) it occurs posterior to the level of the paired processes, in which case neither the positive nor the negative color excitation would be affected by the brightness excitation. The central response alone would be modified. If the results of the preceding investigation are granted, the second interpretation alone seems tenable. If the color in the stimulus is inhibited by the addition of a brightness excitation, and no effect of the inhibition is observed in the after-image, it seems fair to infer that the inhibition takes place posterior to the level of the after-image process. But the previous investigation was not quantitative. The results obtained did not show, for example, that the inhibition of the stimulus color had no effect upon the after-image. They showed merely that, working near the limen, the stimulus color might be inhibited and the complementary color still be sensed in the after-image. A part of the present program, then, becomes the attempt to determine, as accurately as possible, to what degree, if at all, the intensity of the after-image excitation is decreased by adding to the stimulus color a brightness excitation unfavorable to its saturation. This determination should have a twofold bearing. First, it should make plain, once for all, why it is possible to get color in the after-image when none is sensed in the stimulus. (It has never been claimed, for example, that it is possible to get an after-image of a brightness stimulus so weak as to be below the limen of sensation.) And, secondly, it will throw some light on the broader problem presented by the fusion of brightness with color. By serving to indicate the level at which this fusion takes place, this determination helps, for example, to explain a number of somewhat puzzling phenomena attendant upon the fusion of brightness with color, in case of positive, contrast, and after-image sensation.

The question of the level at which the action takes place, however, need not rest upon one line of evidence alone. There are two effects of brightness upon color. (1) It reduces its saturation, and (2) it changes the quality or tone of certain colors. Both types of effect have been pressed into service in this investigation. Furthermore, the problem has been extended to contrast as well as to after-image. It has been found, for example, that a change in the saturation or quality of the inducing color caused by adding a brightness excitation does not produce the appropriate or expected change in the contrast color. We have, then, similar evidence that the action of brightness on color takes place posterior to the level at which induction takes place. In brief, it is shown in this study: (1) that when the color of the stimulus is inhibited by the addition of a brightness excitation, the intensity of the after-excitation, judged in terms of the duration of the after-image, is not affected by this inhibition; (2) that when the tone of the color aroused by a given stimulus is changed by the addition of a brightness excitation, the color of the after-image does not undergo a complementary change; (3) that when the saturation of the inducing color is inhibited by the addition of a brightness excitation, the saturation of the contrast color is not affected by the change; (4) that when the tone or quality of the inducing color is modified by adding a brightness excitation, the tone of the contrast color is not determined in the complementary direction.

The technique for the control of the brightness conditions, which is a most important feature of the work, can not be gone into in this brief report. It will be sufficient to say that, in case of the after-image experiments, for example, the brightness excitation had to be added to the stimulus color in such a fashion that it did not itself give an after-image; for if it had, this brightness after-image would in turn have acted upon the colored after-image, and we should not have gotten as colored after-image the direct sensation response to the negative color excitation. But by the proper control of the brightness conditions throughout the experiments, it was possible to isolate or shell out, so to speak, in the form of the colored after-image, the sensation response to the negative color process in the retina, and thus have a means of testing directly whether or not the positive process was inhibited by the addition of the brightness excitation. A similar control of brightness conditions was exercised in the contrast experiments, with the results mentioned in (3) and (4) above.

C. E. Ferree,
M. G. Rand.

Bryn Mawr College.

SOCIETIES

THE FOURTH INTERNATIONAL CONGRESS OF PHILOSOPHY

The Fourth International Congress of Philosophy was held at Bologna, April 6–11, in accordance with the general program previously published. The absence of several men who were expected to take a prominent part in the work of the Congress, however, made it necessary to modify the program very considerably. Indeed, the news which met the delegates on their first arrival at Bologna, that Windelband, Riehl, Ostwald, Poincaré, Lalande, Stout, and others on the program were all to be absent, seemed at first to render doubtful the success of the Congress. The committee of arrangements, however, were fortunately able to fill the places thus left vacant, and to present a well-balanced and interesting program which was carried through with much enthusiasm. The registration of members amounted to more than three hundred. Italy had naturally the largest representation, both in members present and in speakers. In addition to the distinguished president, Professor Enriques, Tocco, Peano, Croce, Valli, Chiapelli, Padoa, Gemelli de Sarlo, and others took a prominent part in the proceedings of the Congress. Among the French representatives were Boutroux, Bergson, Léon, de Roberty, Rey, Durkheim, Parodi, and Langevin. Külpe, Driesch, Deussen, Nelson, Elsenhaus, de Keyserling, Deyoff, Itelson, and others spoke for Germany, while Belgium, Switzerland, Poland, Russia, and nearly all the countries of continental Europe were represented. The only papers presented in English were by Dr. Schiller, of Oxford, on "Error"; Miss E. C. Jones, of Cambridge, on "A New Law of Thought and Its Implications"; Dr. E. S. Russell, of London, on "Vitalism"; Miss Mary Mills Patrick, of Constantinople, on "Ænesidemus"; Dr. Sheffer, of Harvard University, presenting in French a paper entitled, "La classe des 'primitives' de l'algèbre de la logique." The representatives from America were Professor Fullerton, of Columbia (who was called upon to preside at several of the sessions), Dr. Sheffer, and the writer of this note.

The Congress was held under the high patronage of the King of